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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
| 10/743,135 | 12/23/2003 | Shih-Fan Kuan | 4392-0149P | 7481 |
| 2292 7590 03/22/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747 | | | EXAMINER CHACKO DAVIS, DABORAH | |
| | | | ART UNIT 1756 | PAPER NUMBER |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | NOTIFICATION DATE | DELIVERY MODE | |
| 3 MONTHS | | 03/22/2007 | ELECTRONIC | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/22/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/743,135

Applicant(s)

KUAN ET AL.

Examiner

Daborah Chacko-Davis

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-15, are rejected under 35 U.S.C. 103(a) as being unpatentable over U. S. Patent No. 6,436,762 (Tzeng et al., hereinafter referred to as Tzeng) in view of U. S. Patent Application Publication No. 2001/0046761 (Chung et al., hereinafter referred to as Chung).

Tzeng, in col 3, lines 38-46, in col 4, lines 1-67, discloses a method of forming bit-line contact for DRAM devices by forming gate electrodes (control gates) on the substrate, forming a BPSG dielectric layer on the gate electrodes, performing a first planarization using a CMP process (chemical mechanical polishing), and forming a photoresist pattern on the BPSG dielectric layer followed by etching through the opening in the mask (self-aligned etching) to form a bit-contact opening (bit-line contact window), depositing a conductive layer so as to concurrently fill in the bit-line opening to form a bit-line contact, performing a CMP planarization (polished back) on the conductive layer till the conductive plugs (bit-line contact) are formed (removing all the conductive layer and mask layers till the dielectric layer is revealed), forming a TEOS layer (isolation layer) on the dielectric layer and the plug, forming an opening (aperture) in the TEOS layer such that the opening is aligned with the bit-line contact, followed by

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selective etching of a portion of the exposed bit-line contact, conformally forming a conductive plug in the opening (filling the opening with conductive material) (claims 1-4, 7, 9-14). Tzeng, in col 4, lines 1-12, discloses the use of silicon nitride as the mask (patterned photoresist) (claim 5). Tzeng, in col 4, lines 28-30, and in col 5, lines 15-17, discloses forming a photoresist mask by etching (claim 6). Tzeng, in col 4, lines 28-37, and in col 5, lines 60-67, discloses that the conductive layer (conductive plug) is a polysilicon material or a tungsten plug (metallic material) (claims 8 and 15).

The difference between the claims and Tzeng is that Tzeng does not disclose planarizing the dielectric layer to expose the plurality of control gates.

Chung, in [0034], discloses planarizing the dielectric layer (insulating layer) till the gates (top surface of the gate electrodes') are exposed.

Therefore, it would be obvious to a skilled artisan to modify Tzeng by applying the CMP planarizing process on the dielectric layer till the gate electrodes are revealed as suggested by Chung, because Chung, in [0034], discloses that performing CMP on the insulating layer to reveal the gates enables the formation of a contact pad.

Response to Arguments

3. Applicant's arguments with respect to claims 1-15, have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed December 28, 2006, have been fully considered but they are not persuasive.

A) Applicants argue that Tzeng does not disclose planarizing the dielectric layer to expose the plurality of control gates.

Tzeng is not depended upon to disclose planarizing the dielectric layer to expose the gates. Chung is depended upon to disclose exposing the top surfaces of the gates via dielectric layer planarization.

B) Applicants argue that Tzeng does not teach the issue between bit-line contact and the control gate.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., an issue between the bit-line contact and the control gate) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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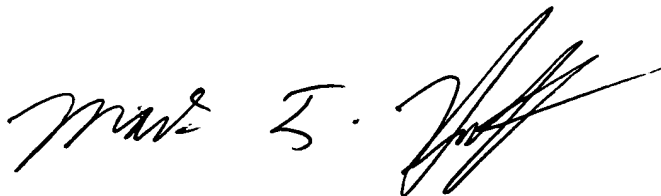
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daborah Chacko-Davis whose telephone number is (571) 272-1380. The examiner can normally be reached on M-F 9:30 - 6:00. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark F Huff can be reached on (571) 272-1385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

dcd



March 14, 2007.



MARK F. HUFF
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